

Wall Street Journal

## **Data Centers Go Solar**

### **Power Demands of Computer Clusters Spawn Alternatives**

By DONNA FUSCALDO  
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Affordable Internet Services Online Inc.'s roughly 300 servers run Web sites across the world, from Kenya to California, and it is of the utmost importance to have zero failure rates.

One thing the Romoland, Calif., Web-hosting company isn't losing any sleep over is a huge monthly bill from the local utility company. That is because its data center is run on solar power.

Affordable Internet Services is just one example of a technology company that has turned to alternative energy to combat rising energy costs. It is an issue that is becoming more prevalent in data centers around the country as electricity prices continue to rise.

Data centers house hundreds to thousands of servers that give off heat and require substantial power to run. Air-conditioning units are needed to keep the servers cool because of the heat, resulting in high energy bills. Power use varies depending on the size and equipment at a data center.

Chip maker Advanced Micro Devices  
<<http://online.wsj.com/quotes/main.html?type=djn&symbol=amd>  
> Inc. says some data centers can consume more power than a small town.

In an effort to address that issue, the nation's computer companies are developing energy-efficient products. Those products are coming in the form of low-powered semiconductors, more-efficient servers and better power supplies. In some cases companies are teaming up, a rarity in the highly competitive technology market.

[jumping juice]"Today, we have over \$5 billion in [requests for proposals] from customers that include some aspect of social responsibility and/or environmental criteria," says David Lear, vice president, corporate, social and environmental responsibility at Hewlett-Packard  
<<http://online.wsj.com/quotes/main.html?type=djn&symbol=hpq>>  
Co.

In recent quarters, AMD, of Sunnyvale, Calif., has gained market share at the expense of chip giant Intel  
<<http://online.wsj.com/quotes/main.html?type=djn&symbol=intc>>  
Corp. in part because of more power-efficient chips like Opteron, which serve the server market. Intel, based in Santa Clara, Calif., plans to unveil more-efficient chips for desktops, laptops and servers later this year.

Technology companies aren't predicting a looming crisis. But the companies hope addressing business customers' power needs will stimulate demand for their products and build their reputation as good corporate citizens, at a time when energy use and waste from technology manufacturing are under scrutiny.

Affordable Internet Services' facility is made of steel and has more than a hundred solar panels. The facility also has solar sky tubes that bring in natural sunlight and a special air-conditioning unit that draws cool air in, reducing the need for electricity. Its servers run low-powered microprocessors produced by AMD, which emit less heat and require less power than conventional chips. While the data center costs about 60% more to build, the company says it will save more money over the long run.

Affordable Internet Services says it saves \$3,000 a month in electricity costs. "A lot of people are noticing our environmental-friendliness," says Phil Nail, system administrator at the Web-hosting company.

Another company that is trying to get an edge on the environmental issue is Rackable Systems Inc., a Milpitas, Calif., server company. Chief Executive Tom Barton says power consumption at large data centers is becoming a big problem, in part because of concerns over the environment and, more importantly, because of rising energy costs.

Rackable recognized the problem three years ago and started investing in technology that would enable its servers to run more efficiently. Today, Rackable incorporates a variety of technologies into its servers that the company says saves customers as much as 30% on monthly power costs.

In November, AMD commissioned a survey of about 1,200 information-technology professionals and found that more than 70% see rising energy costs as a top priority. "The end user is speaking louder than ever," says Marty Seyer, senior vice president of the company's commercial business.

AMD, along with H-P, Sun Microsystems  
<<http://online.wsj.com/quotes/main.html?type=djn&symbol=sunw>  
> Inc., Dell  
<<http://online.wsj.com/quotes/main.html?type=djn&symbol=Dell>>  
Inc., International Business Machines  
<<http://online.wsj.com/quotes/main.html?type=djn&symbol=ibm>>  
Corp., and Rackable, among others, founded the Green Grid, an industry consortium designed to reduce power consumption and cooling demands in data centers. The group is being supported by the Environmental Protection Agency.

Some members of the consortium say it isn't farfetched to eventually see a label on servers that tell a customer just how much energy is being consumed, similar to the Energy Star program that requires electrical appliances to meet certain energy specifications.

Jason Waxman, director of marketing for Intel's server platform group, says Intel is working on other technology that should help reduce energy costs. For instance, Intel developed technology called demand-based switching, which allows a computer's power consumption to be reduced based on workload. Intel says that technology saves 25% of power consumption in some instances. The company is also looking at more-efficient power supplies.

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